



2009 Major Incident Study

Key Focus Areas for Richmond Refinery

**Safety Topic of the Month
Richmond Refinery**

July 2010

Major Incident Study

Aims to:

- Identify root causes of major incidents and recommend actions to reduce potential for similar incidents
- Reduce potential for future incidents by addressing system, leadership and cultural issues that contributed to past incidents
- Improve risk awareness by communicating key findings from major incidents

Covers all of Chevron – Global Upstream and Downstream



Major Incident Study – General

Corporate study – 78 of 2900+ level 2 and level 3 incidents for Global Upstream as well as Downstream

1. Top root causes of Manufacturing incidents included in study:
 - Procedures and Safe Work Practices
 - Risk Recognition and Assessment
 - Oversight and Competency
2. 82% of Manufacturing incidents reviewed – involved injury, environmental, or property damage due to release of hydrocarbons or other hazardous material
 - Can include steam / compressed air / nitrogen / etc.
3. 71% of Manufacturing incidents reviewed took place during routine work

Key Areas for Improvement: Operational Discipline



- Over 75% of Manufacturing incidents identified Procedures & Safe Work Practices as a root cause
 - Mainly due to problems with how Procedures or Safe Work Practices were used
 - ▶ Risk of not following Procedure or Safe Work Practice was not understood
 - ▶ Deviating from Procedure or Safe Work Practice was accepted
 - ▶ Not adequately trained on Procedure or Safe Work Practice
 - Only 3 cases where problem was inadequate or no Procedure or Safe Work Practice

DISCUSSION

How are we doing at following procedures or standards?

Do we always get the procedure out and review it before using it?

-If not, why don't we do this?

-When do you think we should review procedures?

Operational Discipline

Normalizing Deviation from Standards

- Sulfuric Acid Makeup pump seal leaked. About 15 bbls of acid contained within berm
- Scaffold being used as temporary pipe support due to condition of permanent supports
- Permanent pipe supports had degraded to state of disrepair from various acid leaks over time causing issues with piping impacting pump alignment
- Temporary scaffolding was removed in error which created strain on the pump leading to leakage at the seals



DISCUSSION

If there was a problem like this in your work area, would some people be willing to live with it until things went wrong?

Operational Discipline

Non-Richmond Example

- Caustic drum overfilled with caustic, resulting in roughly 3600 gallons of caustic to overflow from the impound area and into the un-segregated drain system. The operator had walked away while filling the drum.

DISCUSSION

What jobs in our area puts us at risk for similar problems?

What steps do you take to prevent losses or near losses if you get called away in the middle of a task?

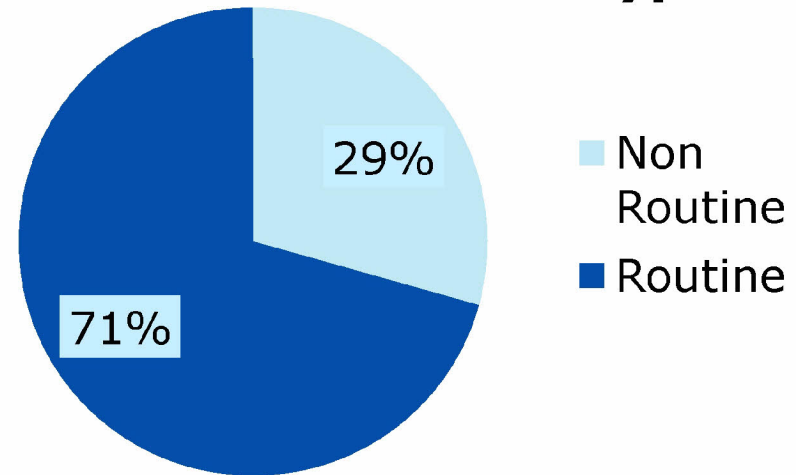
Key Areas for Improvement: Identifying Hazards and Assessing Risk



Risk Recognition was identified as a root cause in over half of the Manufacturing incidents

- $\frac{2}{3}$ of incidents in full study that identified Risk Recognition as a root cause had JHA / JSA as primary risk recognition tool involved
- Oversight & Competency was also identified as a root cause on 48% of routine activities

Manufacturing Incidents - Work Type



DISCUSSION

If the majority of serious incidents take place during routine work, why do we sometimes let our guard down?

Do you think experienced or inexperienced workers are more at risk during routine work?

Are there existing hazards in this work area that need to be assessed?

How can we improve the reporting of hazards?

Key Areas for Improvement: Identifying Hazards and Assessing Risk



A rigger rigged bundle of concrete forms with nylon straps. The bundle of forms was lifted while the rigger was still in the line of fire. The load became unsecured and fell approx. 10 feet, striking the rigger.

JSA for this job did not identify "line of fire" during lifts as a potential hazard



DISCUSSION

Are there times where we know about hazards, but don't connect those hazards to the specific job we're doing?



What We Can Do

- There's always time to do it right – the first time
 - Conduct a JHA / JJSV before every job with everyone involved
 - Take a few seconds to think about how you're going to do each task and what could go wrong (LPSA)
 - Take the time to analyze and mitigate any hazards you identify before starting work
- If it's not right, exercise Stop or Pause Work Authority

CONCLUSION

If you think there's a hazard, don't pass on by and assume someone else will take care of it. If it was your son / daughter / best friend at risk, would you bring that hazard to their attention? Identifying and reporting hazards allows the risks to be assessed and action taken - so we can all go home safely at the end of our work day

Working on 'auto-pilot' takes your most important safety asset out of the game – **your brain**